

AMENDMENTS TO THE CLAIMS

This listing of the claims will replace all prior versions and listings of claims in the application:

Listing of Claims:

Claim 1 (original): An interventional catheter assembly comprising:

- a. an operating head coupled to a drive shaft and a drive assembly for rotation and having ports communicating with a sealed lumen;
- b. a catheter system forming the sealed lumen mounted for axial translation at a proximal end with a control pod and communicating at a distal end with the operating head; and
- c. a control pod housing operational components for advancing the catheter system and selectably rotating the operating head.

Claim 2 (original): An interventional catheter assembly of claim 1, additionally comprising an operating head drive motor coupled to the drive shaft, wherein the drive motor comprises a variable speed drive motor that delivers a constant voltage for any specified rotational output.

Claim 3 (original): An interventional catheter assembly of claim 2, wherein the current delivered to the drive motor is adjusted, under load conditions, if the voltage for any specified rotational output is insufficient to produce the specified rotational output under load conditions.

Claim 4 (original): An interventional catheter assembly of claim 1, additionally comprising an operating head drive motor coupled to the drive shaft, wherein the drive motor employs a cascaded variable regulator voltage source.

Claim 5 (original): An interventional catheter assembly of claim 1, wherein the control pod incorporates selectable operator adjustment features allowing an operator to increase and decrease rotational speed delivered to the drive shaft.

Claims 6-7 (canceled).

Claim 8 (original): An interventional catheter assembly of claim 1, wherein the catheter system has at least one section wherein a coil is provided in proximity to and along a common axis with a flexible sealed catheter and contacts but is not bonded to the catheter, whereby the flexible sealed catheter and coil combination provide a kink-free catheter section.

Claim 9 (original): An interventional catheter assembly of claim 1, additionally having an aspiration motor comprising a multi-lobed vacuum pump that provides a consistent, high level of aspiration during operation of the interventional catheter assembly.

Claim 10 (original): An interventional catheter assembly of claim 1, additionally having an aspiration system comprising a plurality of vacuum pumps connected in series.

Claim 11 (original): An interventional catheter assembly of claim 1, wherein the control pod houses a drive motor coupled to the drive shaft by means of an arrangement of sliding tubes that rotate with respect to one another by balls held in slots formed in the tubes.

Claim 12 (original): An interventional catheter assembly of claim 1, wherein the control pod incorporates a fluid seal assembly providing migration of fluid to a space formed between the drive shaft and a sealing member to prevent ingress of gas to the catheter system.

Claim 13 (original): An interventional catheter assembly of claim 1, wherein the control pod incorporates a speed adjustment selection switch controlling rotational speed transmitted to the drive shaft.

Claims 14-15 (canceled).

Claim 16 (original): An interventional catheter assembly of claim 1, wherein the operating head, catheter system and control pod are provided as a sterile, disposable kit.

Claim 17 (original): An interventional catheter assembly of claim 16, additionally comprising a fluid receptacle in fluid communication with the catheter system.

Claim 18 (canceled).

Claim 19 (original): An interventional catheter assembly of claim 1, wherein the control pod incorporates a guidewire brake operable to clamp a guidewire in a stationary position when engaged and to allow translation of the guidewire through the brake when released.

Claim 20 (original): An interventional catheter assembly of claim 19, additionally comprising a guidewire brake control system interrupt that prevents the drive system from being actuated when the guidewire brake is in a release position.

Claim 21 (original): An interventional catheter assembly of claim 19, additionally comprising a guidewire brake selectable interrupt override control that, when actuated, permits an operator to selectably permit operation of the drive system when the guidewire brake is in a release position.

Claim 22 (canceled).

Claim 23 (original): An interventional catheter assembly of claim 1, additionally comprising an extendable, telescoping guidewire support mounted in the control pod.

Claim 24 (currently amended): An interventional catheter assembly ~~of claim 1, additionally~~ comprising:

- a. an operating head coupled to a drive shaft and a drive assembly for rotation and having ports communicating with a sealed lumen;
- b. a catheter system forming the sealed lumen mounted for axial translation at a proximal end with a control pod and communicating at a distal end with the operating head;
- c. a control pod housing operational components for advancing the catheter system and selectably rotating the operating head; and
- d. a console unit incorporating system control and display features and a motor providing vacuum for aspiration to the catheter assembly.

Claim 25 (original): An interventional catheter assembly of claim 24, wherein the motor comprises a multi-lobed vacuum pump that provides consistent, high levels of aspiration during operation of the interventional catheter assembly.

Claim 26 (original): An interventional catheter assembly of claim 24, wherein the motor comprises a plurality of vacuum pumps connected in series to provide constant, high levels of aspiration during operation of the interventional catheter assembly.

Claim 27 (original): An interventional catheter assembly of claim 24, wherein the console unit is in electrical communication with the control pod and provides power to the drive system.

Claim 28 (currently amended): An interventional catheter assembly of claim 24, wherein the console unit displays output operational information including at least three of operating head rotation rate, operating head advance rate, aspiration rate, elapsed time of operation, aspiration volume, infusion rate, infusion volume and fluid flow rate at the target site.

Claim 29 (new): An interventional catheter assembly of claim 24, wherein the console unit is provided as a reusable component.

Claim 30 (new): An interventional catheter assembly of claim 24, wherein the console unit comprises a control feature for selecting a level of aspiration.

Claim 31 (new): An interventional catheter assembly of claim 24, wherein the console unit comprises a control feature for selecting a level of infusion.

Claim 32 (new): An interventional catheter assembly of claim 24, wherein the console unit is connectable to an infusion source.

Claim 33 (new): An interventional catheter assembly of claim 1, wherein the catheter system is connectable to an infusion source.

Claim 34 (new): An interventional catheter assembly of claim 1, wherein the assembly implements at least one automated operating condition based on at least one parameter input by an operator.

Claim 35 (new): An interventional catheter system of claim 34, wherein the at least one parameter is selected from the group consisting of: lesion length; lesion type; lesion character; rate of blood flow; volume of blood flow; percentage of restriction; lumen type; lumen location; and lumen diameter.

Claim 36 (new): An interventional catheter system of claim 34, wherein the at least one operating condition is selected from the group consisting of: operating head rotation rate and/or profile; operating head advance rate and/or profile; operating head size; aspiration rate, volume and/or profile; infusion rate, volume and/or profile.